

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/GB2004/000294

International filing date (day/month/year)
23.01.2004

Priority date (day/month/year)
23.01.2003

International Patent Classification (IPC) or both national classification and IPC
C10L1/12, C10L10/02

Applicant
OXONICA LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Bertrand, S

Telephone No. +49 89 2399-7861



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/000294

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
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International application No.
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Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 28,42

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 28,42 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/000294

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-27, 29-41
Inventive step (IS)	Yes: Claims	
	No: Claims	1-27, 29-41
Industrial applicability (IA)	Yes: Claims	1-27, 29-41
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Claims 28 and 42 do not meet the requirement of Article 6 PCT since they attempt to define the subject-matter by reference to the description contrary to Rule 6.2 (a) PCT (see the Gazette III-4.10). Consequently no opinion will be established for those claims.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents which have been cited in the International Search Report (ISR):

D1: WO 02/00812 A

D2: US-A-6 136 048

D3: WO 97/44414 A

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-27, 29-41 is not new in the sense of Article 33(2) PCT.

D1 (see the relevant passages cited in the ISR) discloses cerium oxide nanoparticles (1-50 nm) coated with a substance (dodecenyl succinic anhydride) which are used as a fuel additive (diesel fuel) and formulated in the presence of a detergent. The concentration of cerium oxide may be 4 ppm. Therefore D1 anticipates the subject-matter of claims 1, 6-12, 14-18, 26, 27, 29-32, 39 and 40.

D2 (see the relevant passages cited in the ISR) discloses rare-earth metal oxide nanoparticles (less than 20 nm) coated with an organic acid which are used as a fuel additive (diesel fuel) and formulated in a solvent. The nanoparticles may be cerium oxide doped with a transition metal (Fe, Cu, Mn, pd), a rare-earth metal

(La, Ga). Therefore D2 is prejudicial to the novelty of the subject-matter of claims 1-8 and 12-16.

D3 (see the relevant passages cited in the ISR) discloses cerium oxide nanoparticles (1-50 nm) which are used as a marine diesel fuel additive and are formulated in the presence of a detergent (polyisobutene succinimide). The concentration of cerium oxide may be 10-50 ppm. The additives compositions may comprise a solvent and additional additives such as a cetane improver, a demulsifier, an anti-foaming agent or an antioxidant. Therefore the subject-matter of claims 1, 12-2 and 29-41 lacks novelty over D3.

3. With regard to the problem to be solved, the provision of a method of improving the efficiency of a fuel, this has been solved by D1-D3 so that no inventive contribution can be recognised for the subject-matter claimed in the present application.

Re Item VI

Certain documents cited

Certain published documents (Rule 70.10)

Application No	Publication date	Filing date	Priority date (<i>valid claim</i>)
Patent No	(<i>day/month/year</i>)	(<i>day/month/year</i>)	(<i>day/month/year</i>)
WO 03/040270 A	15 May 2003	6 November 2002	

cited in the application is relevant for the subject-matter of claims 1-19, 25-33, 39-42.